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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,755	10/17/2003	Laurence Philip Dickinson	CU-3410 RJS	1988

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EXAMINER	
SAINT SURIN, JACQUES M	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/688,755	DICKINSON ET AL.	
	Examiner	Art Unit	
	Jacques M. Saint-Surin	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/17/03, 02/06/04, 03/08/04, 04/21/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 January 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/06/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 4 should be labeled as prior art. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 5-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lockhart et al. (US Patent Application Publication 2004/0073374 A1).

Regarding claims 1 and 14, Lockhart discloses a probe (probe 10, see paragraph 0017, line 2) for non-destructive testing of items (tooth 30, see: Fig. 1 and paragraph 0015, line 1), the probe being movable and rotatable over the surface of a test item and including a receiver for receiving a return signal from the non-destructive testing of the item (sensor 11 which detects an acoustic shock wave, see: paragraph 0017, lines 3-4) and including displacement means for providing a displacement signal indicative of the spatial displacement of the probe over the test item as the probe is moved over the test item and the displacement means being arranged to provide information on the rotational orientation of the probe if the probe is rotated (shock wave detectors 11, 16 can be any device that measures displacement, such as piezoelectric detectors or fiberoptic Fabry-Perot ultrasound sensor, see: paragraph 0020, lines 15-17). Lockhart further discloses a second detector is optionally connected to a secondary ultrasound signal detection processing device 15 through a lead 17, to provide additional information on the location of sound wave generation, see: paragraph 0020, lines 6-15).

Regarding claims 2 and 5, Lockhart discloses the displacement means comprises a sensor 11 or 16 can be any device that measures displacement. Regarding claim 5, Lockhart discloses a second detector 16 is optionally connected to a secondary ultrasound signal detection processing device 15 through a lead 17, to provide additional information on the location of sound wave generation, see: paragraph 0020, lines 6-15).

Regarding claims 6-7, and 15, Lockhart discloses probe 10 comprises nondestructive testing (NDT) data acquisition, processing and analysis electronics in one housing (ultrasound detector processing device 14, see: Fig. 1). Regarding claim 7, the probe 10, together with a computer 20 for data storage and data display forms a complete NDT system.

Regarding claims 8-9, Lockhart discloses wherein the probe 10 is operatively connectable with the computer (20) using a single USB cable, see: Fig. 1 and paragraph 0020, lines 1-4 .

Regarding claims 10-11, Lockhart discloses the probe 10 comprises computer 20 that inherently comprises computer memory for data storage in one housing, a display and forms a complete NDT system.

Regarding claims 12-13, Lockhart discloses the shock waves generated by the absorption of these light pulses are detected with one or more detectors 11, 16 on either side of tooth 30, revealing three-dimensional information on the location of the absorption of laser pulses in blood as probe 10 is moved around different areas of tooth 30.

4. Claims 1-5, 14 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Derman et al. (US Patent 6,378,376).

Regarding claims 1 and 14, Derman discloses a probe (mounting assembly 10, see: Figs. 1 and 2) for non-destructive testing of items (target not shown, col. 3, line 55), the probe (mounting assembly 10) being movable and rotatable over the surface (45) of a test item (target) and including a receiver (transducer 20, see: Figs 1 and 2) for receiving a return signal from the non-destructive testing of the item and including displacement means (displacement sensor 35, see: Figs. 1-2 and col. 3, lines 45-46) for providing a displacement signal indicative of the spatial displacement of the probe over the test item as the probe is moved over the test item and the displacement means being arranged to provide information on the rotational orientation of the probe if the probe is rotated (each wheel being provided with a displacement sensor 35 to measure the rotation of each wheels 25 relative to the mounting plate as the mounting plate is moved across a surface of the target during ultrasonic scanning, see: col. 3, lines 48-52).

Regarding claim 2, Derman discloses a displacement means that comprises a sensor 35 mounted to the probe and being capable of providing the displacement signal.

Regarding claims 3-4, Derman discloses surface engaging means other than a pair of wheels are equally applicable for use in the displacement sensor assembly. For example, it is envisioned that a single wheel, a trackball (similar in operation to that in a computer mouse, see: col. 4, lines 30-35).

Regarding claims 5, Derman discloses displacement sensor 35 and tilt sensor 40, see: col. 3, lines 45-46.

Regarding claims 16-17, Derman discloses a probe (mounting assembly 10, see: Figs. 1 and 2) for non-destructive testing of items, the probe (10) being movable over the surface of a test item (target not shown, see: col. 3, lines 55-56) and comprising a receiver (transducer 20, see: Figs. 1 and 2) for receiving a return signal for the non-destructive testing of the item and a displacement means (displacement sensor 35, see: Figs. 1 and 2) for providing a displacement signal indicative of the spatial displacement of the probe (10) over the test item as the probe is moved over the test item and a support structure for holding the displacement means (35) over the surface of the test item (wheels 25 are both attached to mounting plate 15, each wheel being provided with a displacement sensor 35 to measure the rotation of each wheels 25 relative to the mounting plate is moved across a surface of the target during ultrasonic scanning, see: col. 3, lines 47-52), wherein the support structure and the displacement means are coupled in a manner so that the displacement means is moveable relative to the support structure (the functional language is inherently met in the reference).

Regarding claim 18, Derman discloses tilt sensor 40 comprises a spring loaded plunger 65, see: col. 4, lines 21-23.

Regarding claim 24, it is similar in scope with claim 16. Therefore, it is rejected for the reasons set forth for that claim. Furthermore, Derman discloses the provision of two separate displacement sensors, spaced a known distance either side of the central axis of the transducer will permit the user to compensate for slight deviations from a

linear scan path, where one wheel has traveled a known distance further than the second wheel, see: col. 5, lines 26-31).

Regarding claim 25, Derman discloses wheels 25 are both attached to mounting plate 15, each wheel being provided with a displacement sensor 35 to measure the rotation of each wheels 25 relative to the mounting plate is moved across a surface of the target during ultrasonic scanning, see: col. 3, lines 47-52. Derman further discloses shaft 50 of wheel 25 passes through a shaft encoder 55 which is maintained stationary within displacement sensor 35 by encoder clamp 60, see: col. 3, lines 57-59.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockhart et al. (US Patent Application Publication 2004/0073374 A1) in view of Sano et al. (US Patent 5,486,925).

Regarding claims 3-4, Lockhart does not disclose or suggest the sensor is equivalent to sensors provided in computer mice and wherein the sensor is an optical sensor similar to those utilized in computer mice. Sano discloses a displacement sensing apparatus (col. 4, lines 2-3). It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute the sensor of Lockhart for that of Sano because it is provided to a mouse which is used as an input apparatus for a computer terminal thereby providing an optical sensor equivalent to the claimed optical sensor equivalent to the computer mouse in an efficient manner.

8. Claims 19, 21, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derman et al. (US Patent 6,378,376) in view of Chee (US Patent 6,084,420).

Regarding claims 19, 23 and 26, Derman does not disclose the support structure has three legs with feet that are arranged in a tripod arrangement. Chee discloses a probe assembly comprises a three-legged probe tips are each positioned centrally on a three-leg supporting unit, see: col. 6, lines 35-37. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Derman the three leg supporting unit of Chee because it would provide effectively the tripod arrangement of the claimed invention in a reliable manner.

Allowable Subject Matter

9. Claims 20, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays through Fridays 10:30 A.M. -7:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272 2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques M. Saint-Surin
February 21, 2005

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